Methods: From January 2012 to June 2014, We implemented strategies for reducing CLABSIs in 3 ICUs of a teaching hospital with 850 beds in Gyounggi province: 1) Central line insertion bundle(5 elements of maximal sterile barrier precaution(MBP), alcohol-based chlorhexidine(CHG) antisepsis usage) compliance were monitored, weekly analyzed and feedback to doctors who did not perform each element. 2) Daily assess for necessity and maintenance of central lines using a tool in electrical medical record(EMR) 3) Informed and forced to physician for early removal. In the same period, CLABSI incidence rates(cases/1,000 catheter-days) were surveyed using CDC/NHSN surveillance definition. The infection rates were analyzed by χ^2-test using statistical program(Epiinfo Ver. 6).
Results: During the study period, MBP compliance with 5 elements improved from 91.4% to 98.6%, 2% CHG antisepsis usage adherence increased from 83.6% to 99.7%. The CLABSI rates decreased from 1.97 to 1.58 ($\chi^2 = 1.19$, $P = .275$) after implementation.
Conclusions: Although there was no statistically significant between CLABSI rates, the actual numbers of CLABSIs reduced after implementation. Implementing strategies may be useful to reduce CLABSIs. Further evaluations are needed and we will continue actions for device early removal and proper maintenance of central lines for reducing CLABSIs.

PS 1-060

REDUCING BLOOD CULTURE CONTAMINATION FOR GUALITY IMPROVEMENT METHODOLOGIES

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Purpose: Blood culture contamination is a common problem in the hosptail that leads to unnecessary patient morbidity and health care costs. The study objective was to develop a quality improvement intervention for reducing blood culture contamination.
Methods: The intervention was developed through quality improvement methodologies, including process mapping, fishbone diagramming, and plan do-study-act cycles.We found that many factors contributed to the high contamination rate.The Countermeasures of implementation have 1) trained the staff how to use the sterile collection technique taking blood culture with educational sessions , 2)enhance the implementation of hand hygiene and periodical assessment ,3)Enhance the cooperation among nurses and paramedics.The goal was to achieve and maintain a contamination rate below 3%.
Results: On October, 2013, the intervention was introduced.During the baseline period(January 1, 2013, to June 30 , 2013), 3.97% blood cultures were contaminated;compared to 27 of 1046 (2.58%)during the intervention period. The contamination rate was maintained below 3% during throughout the intervention period.
Conclusions: The blood culture is an essential tool for diagnosing bloodstream infections and guiding antibiotic therapy.However, false-positive blood cultures due to specimen contamination with skin bacteria are a common problem that leads to unnecessary patient morbidity and increased hospital costs.Using a quality improvement methodologies are reducing blood culture contamination below the 3% benchmark.

PS 1-061

CENTRAL LINE–ASSOCIATED BLOODSTREAM INFECTIONS FOR TWELVE YEARS SECULAR TRENDS IN INCIDENCE AND MORTALITY IN THE INTENSIVE CARE UNIT AT A MAJOR TEACHING HOSPITAL IN TAIWAN

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Purpose: Device–associated infection plays an important part in healthcare associated infection. Of them, central line–associated bloodstream infections (CLABSI) have been associated with significant cost and mortality. In this study, prospective surveillance was conducted to determine the CLABSI rate and prevalence of antibiotic resistant isolates at an adult medical–surgical ICU (MS ICU). Our aim was to analyze the secular trend of incidence for CLABSIs, determine the common pathogens involved, and determine the rates of antimicrobial resistance and overall 30–day and in–hospital mortality.
Methods: This study was conducted in an adult MS ICU located in a major teaching hospital in the northern Taiwan. All patients admitted to the ICU in the period 2002–2013 who developed infections more than 48 hours after admission were eligible for the study. Central line–associated bloodstream infections of the Outcome Surveillance Component were categorized using standard US CDC NHSN definitions that included laboratory and clinical criteria. Trend analysis was performed and logistic regression was used to assess prognostic factors of mortality.
Results: During the study period, those patients who admitted to the ICU had a mean age of 68.5 $\pm$ 18.6 years and a mean APACHE II score 23.1 $\pm$ 6.8. Totally, 165,629 patient–days and 118,105 central line–days were evaluated and a device–utilization ratio for central line catheterization was mean 0.71. The overall mean rate of CLABSIs was 1.77 episodes per 1000 central line–days, range 1.12–3.48 per 1000 central line–days. The most common antimicrobial-resistant pathogens were methicillin–resistant *Staphylococcus aureus*. After controlling for potentially confounding factors, the CLABSI was an independent prognostic factor ($p < 0.05$) for both 30–day mortality and in–hospital mortality.
Conclusions: The secular trend of CLABSIs was maintenance of low incidence despite high device–utilization ratios. The implement of infection control and surveillance program was important.

PS 1-062

QUALITATIVE FIT TEST OF N95 FACIAL MASKS FOR MEDICAL STAFF

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Purpose: Personal protective equipment in airborne precautions is used to avoid inhaling fine droplets with infectious substances. For providing the safest protection, the users need to select the appropriate individual N95 facial masks and perform fit test to determine the suitability of the masks.
Methods: Fit Test can be divided into "qualitative" and "quantitative" methods. Qualitative fit test by hood method is evaluated in four high-risk wards. The subjects perform the eight test actions including normal breathing, deep breathing, swing left and right, swing up and down, speak loudly, expression of emotions, bending over and normal breathing in the process. It means that respiratory protection does not reach the proper adhesion if feeling the test substances through taste or smell at any time.
Results: Total of 200 people involved in analysis. The results disclose that the pass rate of model 3M-1860 is 46% , model 3M-1870 is 36% , model 3M-1860S is 16%.
Conclusions: Performing fit test and choosing appropriate individual N95 facial mask to achieve the personal protective effect is necessary.

PS 1-063

TAUROLIDINE-CITRATE LOCK SOLUTION FOR THE PREVENTION OF CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTION

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Purpose: Catheter- line associated bloodstream infection (CLABSI) is a serious complication of patients on long term central venous catheters (CVC). Taurolidine-citrate solution (TCS) is a catheter-lock solution with broad- spectrum antimicrobial action that prevents biofilm formation. The aim of this study was to evaluate the efficacy of TCS in reducing CLABSI rate in pediatric patients with long-term CVC at KK Women's and Children's Hospital.
Methods: Patients were eligible for the TCS protocol if they had at least 1 previous CLABSI and had long-term CVC including Gastrointestinal (GI) patients on parenteral nutrition (PN) from intestinal failure, and Hematology-Oncology (H/O) patients undergoing chemotherapy or receiving stem-cell transplant. The period of surveillance was from each patient's first

CVC insertion till 16 August 2014 or discontinuation of TCS. CLABSI was calculated based on no. of CVC-associated BSI per 1000 catheter-days.
Results: Fifteen patients were recruited with a median age of 3.25 years (IQR 1.6 to 6 years). Majority were male (68.8%), Malay race (46.7%), had a Hickman CVC (80%) and immunosuppressed (66.7%, from malignancy [n = 7] or congenital immunodeficiency [n = 3]). The median TCS duration was 234 days and each lock lasted a median of 30 hours. Median pre and post-TCS CLABSI rates was 9.95 (IQR 4.37—17.54) and 2.15 (IQR 0—4.46) per 1000 catheter days respectively (p = 0.003). For GI patients, the pre and post rate ratio was 0.22 (95% CI 0.02 -0.95, p = 0.04). For H/O patients the ratio was 0.47 (95% CI 0.17 — 1.15, p = 0.1). Only 1 patient had nausea and vomiting upon initiation. Two patients experienced line occlusion : 1 patient changed to Taurolidine-Heparin (Taurolock-HEP100™), 1 patient discontinued TCS.
Conclusions: Taurolidine-citrate solution was successful in reducing CLABSI rates from 9.95 to 2.15 per 1000 catheter days with minimal side effects and is an effective antimicrobial lock therapy in pediatric patients on long-term CVC.

PS 1-064

IMPACT OF ANTIMICROBIAL APPROPRIATENESS ON CLINICAL OUTCOME OF BACTEREMIC ADULTS DUE TO COMMUNITY-ONSET EXTENDED-SPECTRUM-β-LACTAMASE-PRODUCING *ENTEROBACTERIACEAE*

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Purpose: To investigate determine the impact of empirical antibiotics on the patients' outcome and the relationship of carbapenem minimum inhibitory concentration (MIC) and clinical outcome among adults with community-onset bacteremia due to extended-spectrum-β-lactamase(ESBL)-producing *Enterobacteriaceae*
Methods: A multicenter study was conducted retrospectively for adults with community-onset bacteremia due to ESBL-producing *Escherichia coli, Klebsiella pneumoniae* and *Proteus mirabilis* in the emergency department, during the period between January 2005 and June 2010. Clinical data were determined from chart records. ESBL phenotype and MIC determined following the Clinical and Laboratory Standards Institute criteria.
Results: Of 133 eligible adults, their mean age was 72.2 years, with a predominance of males (78 patients, 58.6%). The crude mortality at discharge was 30.8% (41 patients), and 27.8% (37 patients) died within 28 days after the onset of bacteremia. Despite the empirically appropriate therapy or carbapenem therapy was not associated with 28-day mortality; in further analyses of the survival curves, the difference of 28-day mortality between these patients empirically treated with appropriate antibiotics and those with inappropriate antibiotics appeared significant in critically ill patients with Pitt. bacteremia scores $\geq$4 points ($P = 0.02$). Of 90 patients treated definitively with carbapenems, bacteremia due ertapenem-nonsusceptible isolates (OR 8.98, $P = 0.003$) was independently associated with 28-day mortality. A line-to-line correlation of ertapenem MIC value and 28-day mortality was also demonstrated ($r = 0.98$, $P = 0.02$).
Conclusions: For critical ill patients with such infections, their outcomes were superior in patients treated with appropriate empirical antibiotics compared to those with inappropriate empirical antibiotics. A relationship of ertapenem MIC value and clinical outcome among patients definitively treated with carbapenems was established.

PS 1-065

THE EXPERIENCE OF ENHANCING THE INFECTIOUS SPECIMENS DELIVERY COMPLETENESS IN PSYCHIATRIC HOSPITAL

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Purpose: According to the standard of Ministry of Health and Welfare Department of Infectious Disease Control in our hospital in physical packaging shipping procedures to enhance inspection of notifiable complete package rate plan, improve report timeliness and correctness check packaging , reduce the unnecessary cost of hospital waste , avoid irregularities have been avoid irregularities have been returned or dispose.
Methods: Specimens properties into three category , including category A infectious substances, category B infectious substances, and general specimen, tripple-wrapped packaging individually. Station bearing the process reminds medical technicians and confirm by two medical technicians . Monthly to calculate the certifiable infectious specimen submittal completeness rate of hospital quality indicators included in the control record and review the complete package of negligence specimen rate and send pieces of the specimen infectious diseases in the meeting.
Results: The specimen's delivery completeness rate upgrade from 33.3% to 100% after the intervention in Aug., 2012, adopted two remind pictures and two medical technicians to confirm the completeness of packaging specimen, there is no negligence specimen packaging event.
Conclusions: Re-examine the certifiable infectious specimen delivery operational procedure, confirmation by the importing pictures to remind and medical technicians systems marked increase in specimen packaging, this intervention could improve the medical quality.

PS 1-066

A COMPUTER REMINDER REDUCES CATHETER-ASSOCIATED URINARY TRACT INFECTIONS IN HOSPITALIZED PATIENTS

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Purpose: This study applies "computer reminder" to evaluate the effect of reminder system on the rate of catheter-associated urinary tract infections, catheterization days, and urinary catheter use.
Methods: A retrospective study was performed in medical center. we approach all indwelling urinary catheters presence for more than 24 hours during Apr 2011 to Apr 2013. Since Apr 19 th,2012, when physicians or nurses click the catheterization patients on computer, that reminder appears automatically, call attention to catheterization days and assess early removal of the catheter.
Results: A total of 48,556 patients were recruited. The rate of catheter-associated urinary tract infections by 3.07 ‰ decreased to 2.63 ‰ (p = 0.018) had statistically difference. Utilization rate of indwelling urinary catheters from 22.55% before the intervention decreased significantly to 22.41% (p = 0.043). The duration of catheterization was shortened from 7.64 days to 7.57 days (p = 0.515).
Conclusions: "Computer reminder" provided physicians or nurses to assess and remove of the catheter as soon as possible. The results suggested to remind measures by available computer system to reduce of catheter-associated urinary tract infections

PS 1-067

EFFICACY OF REPIGEL™ AND OTHER PREPARATIONS WITH ANTISEPTIC PROPERTIES AGAINST BIOFILM FORMED BY *PSEUDOMONAS AERUGINOSA*, *CANDIDA ALBICANS* AND METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* (MRSA)

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Purpose: The efficacy of eight topical wound preparations and a silver-impregnated wound dressing was assessed against *Pseudomonas aeruginosa*, and multispecies biofilms of *Candida albicans* and methicillin-resistant *Staphylococcus aureus* (MRSA) in an *in vitro* model, with and without dilution. It is important to evaluate antiseptic activity with dilution, topical agents are often absorbed by dressings or diluted by wound exudates.
Methods: *P. aeruginosa* and mixed *C. albicans* and MRSA biofilms were established on polystyrene coupons for 48 hours using a CDC reactor. Coupons were treated for 4 or 24 hours with a range of agents. Control samples were treated with PBS. All products were tested at commercial concentrations and 1:10 dilution. Remaining viable biofilm material was quantified in triplicate using serial dilutions and colony counts.